

REMARKS

In response to the official action:

Claims 1-3, 5-7, 10-13, and 17-19 were rejected as being as anticipated by Yonehara '266.

Claims 4 and 8 (reciting inductors), and 14-16 and 20 (now canceled), were rejected as being as unpatentable over Yonehara '266 in view of Eda '057. The rejections are respectfully traversed.

The Examiner is requested to especially consider two features:

**First Feature.** The first feature is the sapphire substrate, formerly recited in claims 6 and 10 and now incorporated into independent claims 1 and 6. Sapphire is transparent, in contrast to the substrate 7 of Yonehara (which the reference states is "light non-transparent" at col. 9, line 26). If Yonehara's substrate were transparent (it is not), then there would be no need for grooves, because the grooves (for example, the groove of Yonehara's Fig. 3D) are provided by Yonehara only for light transparency. In contrast, light transparency is immaterial to the instant claims, but a groove is required for reducing dielectric loss, even if the substrate is transparent (e.g., of sapphire)..

**Second Feature.** As is exemplified in instant Fig. 1, a plurality of bonding pads BP surround a circuit element area FB1, and no groove G is formed below these bonding pads BP (the groove is shown in Fig. 2). New independent claim 21 (based on claim 1) and new independent claim 27 (based on claim 6) both recite this feature; claims 17 and 18, that recited a similar feature, are canceled.

Grooves formed in the substrate will, inevitably, reduce the mechanical rigidity of the substrate. If a groove is formed under the bonding pads, the substrate below the bonding pads becomes weak. When wiring is attached to the bonding pads, a certain force is applied to the bonding pads to the neighboring areas, that force can cause damage if the support substrate is weak. This is mentioned in the specification at page 12, second paragraph.

By providing the bonding pads surrounding the circuit element area, a square (or rectangular) frame is defined by the bonding pads along the periphery of the substrate. And, by providing no groove below the bonding pads, the substrate under the bonding pads is made strong enough to maintain sufficient rigidity along the frame shape defined by the bonding pads. Thus, even if many grooves are formed in the substrate, the instant claims provide that the substrate retains rigidity along its periphery, the place where rigidity is needed. This prevents any significant reduction of the rigidity of the entire device.

The Examiner asserts that the elements above the source and drain 66 and 67 in Fig. 38 of Yonehara are the bonding pads, but this observation is respectfully traversed. Fig. 38 refers back to Fig. 26 (see col. 50, lines 27-29) and the description of Fig. 26 states that the element 74, which is located above elements 66 and 67, is an “Al wiring electrode” (col. 43, line 22), which is seen to mean an internal circuit line. This wiring electrode is not connected to any bonding wires: instead, it is covered up by layers 60, 164 that appear to be insulation.

Fig. 27 of Yonehara shows a pad 93 (col. 44, line 33), but there is only one pad. With respect, Yonehara does not teach a plurality of bonding pads arranged in a particular configuration, such as surrounding a distinct area (as in the new claims).

Eda, like Yonehara, also fails to teach the second feature of the invention, because a plurality of bonding pads are not provided. Thus, no combination (not admitted obvious) could reach the instant claims.

Eda does not show a groove below the inductor 5. Thus, Eda does not teach reducing the dielectric loss.

Claims 4, 8, 26, and 28 recite inductors. The Applicants against note that, even if one were to add an inductor to Yonehara (not admitted obvious), Yonehara would not put that inductor into the light path, because that would obstruct the light. It would be put somewhere else. And if put somewhere else, there would be no groove under it because neither reference teaches putting a groove under an inductor.

The Applicants respectfully repeat their argument that there is no motivation to combine the references. With respect, providing an inductor “to act as a passive chip component,” as the Examiner asserts, is not sufficient because Yonehara expresses no need for passive chip components and the person of ordinary skill would not add one of these to Yonehara arbitrarily.

The Applicants respectfully repeat their argument that the claimed additional layers is contrary to the optical function of Yonehara because the additional layers would block light.

The new claims are patentable for the reasons set out above.

Respectfully submitted,

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Date

  
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